

# Office Action Summary

Application No.

09/630,413

Applicant(s)

DEMAKAKOS ET AL.

Examiner

Michael I McLoughlin

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2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 21, 35, 42, and 46 are rejected under 35 U.S.C. 112, first paragraph, because the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to build the invention commensurate in scope with this claims. Most telecommunications shelves have physical dimensions of inches, however this claim has 13.5mm and 14 mm, which convert to 0.526 inches and 0.546 inches respectively. It is the examiners opinion that it would be physically impossible to mount six jacks and multiple LEDs in a height of 0.546 inches.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 19-21, 33-35, 41-42, 44-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claims ~~19~~, ~~33~~, ~~41~~, and, ~~44~~, recite the phrase "circuit-card specification for a standard wall-mountable telecommunications shelf" renders the claim indefinite. Specifically, reference to a standard must include the title, standard number, and publication date. See MPEP § 2173.05(d).

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- Claims ~~20~~, ~~34~~, ~~42~~, and ~~44~~, recite the phrase "200-type or 400-type" renders the claim indefinite. Specifically, reference to a standard must include the title, standard number, and publication date. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6-8, 10, 11, 15-17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bergstrom et al. (U.S. 5,521,977), hereinafter referred to as Bergstrom.

Regarding claim 1, Bergstrom discloses a repeater (Network Interface Jack, NIJ) for interfacing between a digital service network (see 20 and 24 on figure 5) and a local network span (see 22 and 26 on figure 5) comprising:

- A first input port for connection to a first digital carrier link for coupling to a digital network (20 of figure 5);
- A first output port for connection to a second digital carrier link for coupling to digital terminal equipment (22 of figure 5);
- A first signal transmission path between the first input and output ports (signal path between 20 and 22 of figure 5);
- A second input port for connection to a second digital carrier link for coupling to digital terminal equipment (26 of figure 5);

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- A second output port for connection to the first digital carrier link for coupling to a digital network (24 of figure 5);
- A second signal transmission path between the second input and output ports (signal path between 26 and 24 of figure 5);
- A first selectably-activated loopback circuit which, when activated provides a fourth signal path between the first input port and the second output port (loopback side 1 to side 2, see 924 of figure 6);
- A second selectably-activated loopback circuit which, when activated provides a third signal path between the first input port and the second output port (loopback side 2 to side 1, see 926 of figure 6);
- A controller (68 of figure 5, and 930 of figure 6) coupled with the first and second selectably activated loopback circuits configured to selectively activate the first and second loopback circuits individually and simultaneously.

Regarding claim 6, Bergstrom discloses a visual indicator (LED) that flashes when the system is in a timed loopback (see column 11, lines 49-50), and it is implicit that the flashing changes based for loopback and when both loopbacks are activated.

Regarding claim 7, it is inherent that a line build out circuit exist in order to insure the pulse height and compensate for attenuation due to the allowed physical equipment separation and conform with DSX-1 as disclosed in column 9 on line 5.

Regarding claim 8, it is inherent that a pre-equalizer (ALBO) be part of a T1 regenerator.

Regarding claim 10, Bergstrom discloses an optional switch for manual loopback in column 9 on line 41, and this switch implicitly controls both the first and second loopbacks.

Regarding claim 11, Bergstrom discloses a first loopback code detector (924 of figure 6) and a second loopback code detector (926 of figure 6) and detection of loop-up codes (see figure 11) and loop-down codes (see figure 12).

Regarding claim 15, Bergstrom discloses a repeater of claim 1, further comprising;

- A first frame format detector (data pattern detector 916 of figure 6) configured to determine a first format of a first signal on the first transmission path (signal path between 20 and 22 of figure 5)
- A second frame format detector (data pattern detector 918 of figure 6) configured to determine a second format of a first signal on the second transmission path (signal path between 26 and 24 of figure 5)
- A first visual indicator (DXSLOS LED, see figure 9) which provides one of a first plurality of indications (no LOS when not illuminated, LOS illuminated) based on the first format; and
- A second visual indicator (CPELOS LED, see figure 9), which provides one of a second plurality of indications (no LOS when not illuminated, LOS illuminated) based on the second format.

Regarding claim 16, Bergstrom discloses that the first and second formats are SF/D4 and T1-ESF in column 7 on lines 64-65.

Regarding claim 17, Bergstrom discloses that the first input port and the second output port are adapted for connection to a DSX-1 network (DSX on the network side, see column 9 line 5).

Regarding claim 19, Bergstrom discloses a repeater wherein the physical dimensions conform to a circuit-card specification for a standard wall-mountable telecommunication shelf (Type-400 NIU, see column 4 line 36).

Regarding claim 20, Bergstrom discloses a repeater wherein the circuit-card specification is one of a 200-type or 400-type (Type-400 NIU, see column 4 line 36).

Regarding claim 21, Bergstrom discloses a repeater wherein the physical dimensions of the board (11 of figure 4) measures approximately 5 ½ inches (approximately 141 mm) on each side in column 5 on line 38.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 5, 9, 12-14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. 5,521,977), hereinafter referred to as Bergstrom, in view of Noran Tel NTI-95008-SIJ (9508-07A Data Sheet, and Tech: 95008 Technical Practices, hereinafter referred to as SIJ.

Regarding claim 2, Bergstrom discloses that the first signal transmission path further comprises a first signal regenerator (see 62 of figure 5), but fails to teach the second regenerator. SIJ teaches the second signal transmission path further comprising a second signal regenerator (see data sheet 9508-07A features, next to last bullet on the left that teaches receive channel to customer may be regenerative or passive DIP switch selectable). Replacing Bergstrom's attenuator 78 of figure 5 with the SIJ regenerator would result in the claimed invention. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to change the attenuator to a regenerator, and one would have been motivated to make this change to allow physical separation of the repeater and customer premise equipment.

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Regarding claim 5, Bergstrom discloses a Loopback LED that flashes when the system is in a timed loopback (see column 11, lines 49-50), but fails to teach the first, second, and third indicator for loopback. However, Bergstrom teaches multiple visual indicators, such as, DSX and CPE LOS LEDs (see figure 9), and ESF LED (see column 11 line 35) for specific functions. The difference between the claimed and Bergstrom's NIJ is that it has three visual indicators for specific loopback states. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use multiple LEDs as taught by Bergstrom and arrive at the claimed invention in order to have a very easily understood indication of the loopback states.

Regarding claims 9 and 18, Bergstrom fails to teach line power and connection to a T1 span, but SIJ teaches:

- For claim 9, a selectably enabled power supply which, when enabled, provides power to the second digital carrier link for coupling to digital terminal equipment (see locally powered on the second to last sentence of section 6.3 of Tech: 95008).
- For claim 18, the second input port and first output port are adapted for connection to a T1 span, but SIJ teaches connection to a T1 span (see 7.3 and 7.4 of tech: 95008).

The difference between Bergstrom's NIJ and the claimed invention is that the NIJ is used only in network applications where it is co-located with customer premise equipment, and the claimed invention is used in co-located networks or where there is an intervening span line.



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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bergstrom's NIJ with the SIJ teaching in order to allow a single unit to apply to both co-located and intervening span networks.

Regarding claims 12, 13, and 14 Bergstrom discloses jacks (see figure 4) but fails to explicitly teach assignments of jacks. The difference between the claimed invention and Bergstrom is that each jack is assigned to a specific function. SIJ explicitly teaches assignments of jacks to specific functions (see data sheet 9508-07A features), as follows:

- For claim 12, first monitor jack for non-intrusively providing a monitor connection with the first signal transmission path and a second monitor jack for non-intrusively providing a monitor connection with the second signal transmission path (TX mon and RX mon respectively, the first bullet of the right hand column).
- For claim 13, a third jack for providing signal access to the first digital carrier link for coupling to a digital network (TX line or TX drop); and a fourth jack for providing signal access to the second digital carrier link for coupling to digital equipment (RX line or RX mon).
- For claim 14, the first bullet of the right hand column wherein signal access comprises signal detection (drop) and signal injection (line).

Modifying Bergstrom's jacks by assigning each jack to a specific function as taught by SIJ would result in the claimed invention, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to assign each jack with a specific function.

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This modification would have resulted in the claimed invention and would have allowed maintenance personnel to gain physical access for testing at each and every repeater location on any given span line.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. 5,521,977), hereinafter referred to as Bergstrom, in view of Noran Tel NTI-95008-SIJ (9508-07A Data Sheet, and Tech: 95008 Technical Practices, hereinafter referred to as SIJ, and further in view of Hurst et al, (U.S. 5,422,929), hereinafter referred to as Hurst.

Regarding claim 3, Bergstrom fails to teach a multi-position switch that activates the first signal regenerator when in a first position and de-activates the first signal generator when in a second position. Hurst teaches a multi-position switch for the first regenerator that is shown as 64 in figure 2B. Adding the switch taught by Hurst to the repeater would result in the claimed invention. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the switch in order to individually control power on the first regenerator.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom in view of SIJ as applied to claim 2 above, and further in view of Draft revision of T1.408 (T1E1.2/98-007), hereinafter referred to as Draft T1.408.

Regarding claim 4, Bergstrom teaches a third transmission path that further comprises the first signal regenerator when the first selectably activated loopback circuit is activated as cited in claim 1 above. SIJ teaches a passive fourth transmission path loopback, but fails to

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teach the fourth transmission path further comprises the second signal regenerator when the second selectably activated loopback circuit is activated. Draft T1.408 teaches the fourth transmission path comprises the second regenerator when the second selectably activated loopback circuit is activated (see page 13, I<sub>a</sub> Payload LB). Modifying the fourth transmission path to include the second regenerator instead of being passive would result in the claimed invention. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the second regenerator in the second loopback in order to test the repeater payload in this direction of loopback.

11. Claims 22-23, 25, and 27-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. 5,521,977), hereinafter referred to as Bergstrom, in view of Noran Tel NTI-95008-SIJ (9508-07A Data Sheet, and Tech: 95008 Technical Practices, hereinafter referred to as SIJ.

Regarding claim 22, Bergstrom discloses a terminal extension repeater:

- A first input port for connection with a terminal side of the digital service network, the first input port receiving a first digital signal (22 of figure 5);
- A first output port for connection with a network side of the local network connected with customer premises equipment, the first output port providing a first regenerated signal (22 of figure 5);
- A second input port for connection with the network side of the circuit connected with customer premises equipment, the second input port receiving a second digital signal (26 of figure 5);

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- A second output port for connection with the terminal side of the digital service network, the second output port providing a second signal to the digital service network (24 of figure 5);
- A first signal regenerator coupled between the first input and output for generating the first regenerated signal based on the first digital signal (62 of figure 5);
- A first selectably-activated loopback circuit which, when activated loops the first regenerated signal to the second output port (loopback side 1 to side 2, see 924 of figure 6);
- A second selectably-activated loopback circuit which, when activated loops the second signal to the first output port; and (loopback side 2 to side 1, see 926 of figure 6);
- A controller (68 of figure 5, and 930 of figure 6) coupled with the first and second selectably activated loopback circuits configured to selectively activate the first and second loopback circuits individually and simultaneously.

Bergstrom fails to teach connection to a local network span connected with customer premises equipment and a second signal regenerator, but SIJ teaches this (see data sheet 9508-07A features, next to last bullet on the left that teaches receive channel to customer may be regenerative or passive DIP switch selectable). Replacing Bergstrom's attenuator 78 of figure 5 with the SIJ regenerator would result in the claimed invention. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to

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change the attenuator to a regenerator, and one would have been motivated to make this change to allow physical separation of the repeater and customer premise equipment.

Regarding claim 23, Bergstrom discloses a first loopback code detector (see 924 of figure 6).

Regarding claim 25, Bergstrom discloses a second loopback code detector (see 926 of figure 6).

Regarding claim 27, Bergstrom discloses an optional switch for manual loopback in column 9 on line 41, and this switch implicitly controls both the first and second loopbacks.

Regarding claim 28, it is inherent that:

- A line build out circuit exist in order to insure the pulse height and compensate for attenuation due to the allowed physical equipment separation and conform with DSX-1 as disclosed in column 9 on line 5.
- A pre-equalizer (ALBO) be part of a T1 regenerator.

Regarding claim 29, Bergstrom discloses jacks (see figure 4) but fails to explicitly teach assignments of jacks. The difference between the claimed invention and Bergstrom is that each jack is assigned to a specific function. SIJ explicitly teaches assignments of jacks to specific functions (see data sheet 9508-07A features), as follows:

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- A first monitor jack for non-intrusively providing a monitor connection with the first digital signal (TX mon of the first bullet of the right hand column); and
- A second monitor jack for non-intrusively providing a monitor connection with the second signal transmission path (RX mon of the first bullet of the right hand column).

Modifying Bergstrom's jacks by assigning each jack to a specific function as taught by SIJ would result in the claimed invention, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to assign each jack with a specific function. This modification would have resulted in the claimed invention and would have allowed maintenance personnel to gain physical access for testing at each and every repeater location on any given span line.

Regarding claim 30, Bergstrom discloses the terminal extension repeater of claim 22, further comprising:

- A first frame format detector (data pattern detector 916 of figure 6) configured to determine a first format of a first signal on the first transmission path (signal path between 20 and 22 of figure 5)
- A second frame format detector (data pattern detector 918 of figure 6) configured to determine a second format of a first signal on the second transmission path (signal path between 26 and 24 of figure 5)

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- A first visual indicator (DXSLOS LED, see figure 9) which provides one of a first plurality of indications (no LOS when not illuminated, LOS illuminated) based on the first format; and
- A second visual indicator (CPELOS LED, see figure 9), which provides one of a second plurality of indications (no LOS when not illuminated, LOS illuminated) based on the second format.

Regarding claim 31, Bergstrom discloses that the first and second formats are SF/D4 and T1-ESF in column 7 on lines 64-65.

Regarding claim 32, Bergstrom discloses that the first input port and the second output port are adapted for connection to a DSX-1 network (DSX on the network side, see column 9 line 5).

Regarding claim 33, Bergstrom discloses a repeater wherein the physical dimensions conform to a circuit-card specification for a standard wall-mountable telecommunication shelf (Type-400 NIU, see column 4 line 36).

Regarding claim 34, Bergstrom discloses a repeater wherein the circuit-card specification is one of a 200-type or 400-type (Type-400 NIU, see column 4 line 36).

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Regarding claim 35, Bergstrom discloses a repeater wherein the physical dimensions of the board (11 of figure 4) measures approximately 5 ½ inches (approximately 141 mm) on each side in column 5 on line 38.

12. Claims 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. 5,521,977), hereinafter referred to as Bergstrom, in view of Noran Tel NTI-95008-SIJ (9508-07A Data Sheet, and Tech: 95008 Technical Practices, hereinafter referred to as SIJ, and further in view of Barton et al. (U.S. 5,343,461).

Regarding claim 24 and 26, Bergstrom teaches loop-up and loop-down codes, but fails to teach a plurality of formats. Barton teaches a plurality of formats (plurality of available protocols on line 51 of column 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bergstrom's NIJ with Barton's teaching on protocols and arrive at the claimed invention. One would have been motivated to make this modification in order to interoperate with a wider variety of T1 loopback systems.

13. Claims 36, and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. 5,521,977), hereinafter referred to as Bergstrom, in view of Noran Tel NTI-95008-SIJ (9508-07A Data Sheet, and Tech: 95008 Technical Practices, hereinafter referred to as SIJ.

Regarding claim 36, Bergstrom discloses a repeater for interfacing between a digital service network and digital terminal equipment:



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- A first input port for connection to a first digital carrier link to a digital network (22 of figure 5);
- A first output port for connection to a second digital carrier link to digital terminal equipment (22 of figure 5);
- A first signal transmission path between the first input and output ports (signal path between 20 and 22 of figure 5) comprising a first signal regenerator (62 of figure 5);
- A second input port for connection to a second digital carrier link to digital terminal equipment (26 of figure 5);
- A second output port for connection to the first digital carrier link to a digital network (24 of figure 5);
- A second signal transmission path between the second input and output ports (signal path between 26 and 24 of figure 5);

Bergstrom fails to teach a second signal transmission path comprising a second signal regenerator, but SIJ teaches this (see data sheet 9508-07A features, next to last bullet on the left that teaches receive channel to customer may be regenerative or passive DIP switch selectable). Replacing Bergstrom's attenuator 78 of figure 5 with the SIJ regenerator would result in the claimed invention. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to change the attenuator to a regenerator, and one would have been motivated to make this change to allow physical separation of the repeater and customer premise equipment. Also, Bergstrom discloses jacks (see figure 4) but fails to

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explicitly teach jacks. SIJ explicitly teaches jacks (see data sheet 9508-07A features), as follows:

- For claim 12, first monitor jack for non-intrusively providing a monitor connection with the first signal transmission path; and
- A second monitor jack for non-intrusively providing a monitor connection with the second signal transmission path (TX mon and RX mon respectively, the first bullet of the right hand column).

Regarding claim 38, Bergstrom discloses a repeater further comprising:

- A first frame format detector (data pattern detector 916 of figure 6) configured to determine a first format of a first signal on the first transmission path (signal path between 20 and 22 of figure 5)
- A second frame format detector (data pattern detector 918 of figure 6) configured to determine a second format of a first signal on the second transmission path (signal path between 26 and 24 of figure 5)
- A first visual indicator (DXSLOS LED, see figure 9) which provides one of a first plurality of indications (no LOS when not illuminated, LOS illuminated) based on the first format; and
- A second visual indicator (CPELOS LED, see figure 9), which provides one of a second plurality of indications (no LOS when not illuminated, LOS illuminated) based on the second format.

Regarding claim 39, Bergstrom discloses that the first and second formats are SF/D4 and T1-ESF in column 7 on lines 64-65.

Regarding claim 40, Bergstrom discloses a repeater wherein the physical dimensions conform to a circuit-card specification for a standard wall-mountable telecommunication shelf (Type-400 NIU, see column 4 line 36).

Regarding claim 41, Bergstrom discloses a repeater wherein the circuit-card specification is one of a 200-type or 400-type (Type-400 NIU, see column 4 line 36).

Regarding claim 42, Bergstrom discloses a repeater wherein the physical dimensions of the board (11 of figure 4) measures approximately 5 ½ inches (approximately 141 mm) on each side in column 5 on line 38.

14. Claims 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. 5,521,977), hereinafter referred to as Bergstrom, in view of Noran Tel NTI-95008-SIJ (9508-07A Data Sheet, and Tech: 95008 Technical Practices, hereinafter referred to as SIJ, and further in view of Hurst et al, (U.S. 5,422,929), hereinafter referred to as Hurst.

Regarding claim 37, Bergstrom fails to teach a multi-position switch that activates the first signal regenerator when in a first position and de-activates the first signal generator when in a second position. Hurst teaches a multi-position switch for the first regenerator that is shown as 64 in figure 2B. Adding the switch taught by Hurst to the repeater would result in

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the claimed invention. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the switch in order to individually control power on the first regenerator.

15. Claims 43- 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. 5,521,977), hereinafter referred to as Bergstrom, in view of Noran Tel NTI-95008-SIJ (9508-07A Data Sheet, and Tech: 95008 Technical Practices, hereinafter referred to as SIJ.

Regarding claim 43, Bergstrom discloses:

- A first input port for connection to a first digital carrier link to a digital network (22 of figure 5);
- A first output port for connection to a second digital carrier link to digital terminal equipment (22 of figure 5);
- A first signal transmission path between the first input and output ports (signal path between 20 and 22 of figure 5);
- A second input port for connection to a second digital carrier link to digital terminal equipment (26 of figure 5);
- A second output port for connection to the first digital carrier link to a digital network (24 of figure 5);
- A second signal transmission path between the second input and output ports (signal path between 26 and 24 of figure 5);

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- A first frame format detector (data pattern detector 916 of figure 6) configured to determine a first format of a first signal on the first transmission path (signal path between 20 and 22 of figure 5)
- A second frame format detector (data pattern detector 918 of figure 6) configured to determine a second format of a first signal on the second transmission path (signal path between 26 and 24 of figure 5)
- A first visual indicator (DXSLOS LED, see figure 9) which provides one of a first plurality of indications (no LOS when not illuminated, LOS illuminated) based on the first format; and
- A second visual indicator (CPELOS LED, see figure 9), which provides one of a second plurality of indications (no LOS when not illuminated, LOS illuminated) based on the second format.

Bergstrom discloses jacks (see figure 4) but fails to explicitly teach jacks. SIJ explicitly teaches jacks (see data sheet 9508-07A features), as follows:

- For claim 12, first monitor jack for non-intrusively providing a monitor connection with the first signal transmission path; and
- A second monitor jack for non-intrusively providing a monitor connection with the second signal transmission path (TX mon and RX mon respectively, the first bullet of the right hand column).

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Regarding claim 44, Bergstrom discloses a repeater wherein the physical dimensions conform to a circuit-card specification for a standard wall-mountable telecommunication shelf (Type-400 NIU, see column 4 line 36).

Regarding claim 45, Bergstrom discloses a repeater wherein the circuit-card specification is one of a 200-type or 400-type (Type-400 NIU, see column 4 line 36).

Regarding claim 46, Bergstrom discloses a repeater wherein the physical dimensions of the board (11 of figure 4) measures approximately 5 ½ inches (approximately 141 mm) on each side in column 5 on line 38.

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- 1) Dively et al. (U.S. 4,980,887), Digital communication apparatus and method.
- 2) Garcia (U.S. 5,224,149), Testing system for digital transmission lines.
- 3) Sheets et al. (U.S. 5,437,023), Noise-tolerant address transmission system for digital telecommunication network.
- 4) Kelsey et al. (U.S. 5,600,656), Remote loopback apparatus and method for telephone line repeaters.
- 5) Peteski et al. (U.S. 5,680,405), Remote reporting system for digital transmission line elements.

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- 6) Kelsey et al. (U.S. 5,726,993), Signal detector for telephone line repeater remote loopback system.
- 7) Peteski et al. (U.S. 5,889,785), Remote reporting system for digital transmission line elements.
- 8) Bergstrom et al. (U.S. 5,907,614), High density telephone network interface unit.
- 9) Peteski et al. (U.S. 6,151,691), Remote reporting system for digital transmission line elements.
- 10) Peteski et al. (U.S. 6,453,432), Method and system for communicating the status of a digital transmission line element during loopback.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael I McLoughlin whose telephone number is 703-308-7911. The examiner can normally be reached on weekdays 7AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

*MSM*  
October 24, 2003

  
RICKY NGO  
PRIMARY EXAMINER